REMARKS

Claims 11 and 12 have been canceled and new claims 13-20 have been added. Therefore, claims 13-20 are currently pending.

The Invention

The present invention provides heat-sealable multilayer plastic films for packaging and labeling. The films of the invention fill a need in the art for heat-sealable films compatible with modern high speed packaging machinery and suitable for use with frozen novelties, such as ice cream bars and ice cream sandwiches.

In particular, the films of the present invention do not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F, a critical property for the application of these films to packaging and labeling heat-sensitive items.

REJECTION OF CLAIMS 11 AND 12 UNDER 35 U.S.C. §103(a)

In the Office Action of July 9, 2002, the Examiner rejected claims 11 and 12 as allegedly unpatentable over Schuhmann et al. (U.S. 5,326,625), in view of Keller et al. (U.S. 5,691,043), Falla et al. (U.S. 5,674,944), Crighton et al., (U.S. 6,235,143) and Schreck (U.S. 5,681,208).

The Examiner stated that Schuhmann et al. discloses a heat sealable opaque multilayer polypropylene film of five layers meeting the claim limitations. Further, according to the Examiner, it would have been obvious to one of ordinary skill at the time the invention was made to employ the film of Schuhmann with the individual layers as presently claimed.

The Examiner points to the disclosure in Schuhmann et al. of a film of 40 microns in thickness having individual layers of reported thicknesses (shown below in Table 1). According to the Examiner, the Schuhmann et al. reference discloses a sealable opaque five layer polypropylene (PP) film as presently claimed. The Examiner states that Schuhmann et al. discloses a top skin layer comprising PP and 0.1 to 0.5% SiO_2; a bottom skin layer comprising an ethylene-propylene-butylene terpolymer and SiO_2 and an intermediate layer comprising 3% TiO_2.

The Examiner concedes that the Schuhmann et al. reference is silent as to the PBT of the core layer; and the silicone oil and cross-linked silicone of the top and bottom layers, respectively of claims 11 and 12. The Keller et al. patent is cited for the teaching of a core layer comprising PBT as a cavitating agent and a skin layer comprising silicone oil and cross-linked silicone. Furthermore, the Examiner states, that it would have been obvious for one of skill in the art to have incorporated PBT into the core layer to form microvoids, and silicone oil and cross-linked silicone of the top and bottom layers, respectively motivated by the desire to reduce the coefficient of friction (COF) of the film.

At page 4 of the Office Action of July 6, 2002, the Examiner states that the combination of Schuhmann et al. and Keller et al. teaches every element of the claims except a phosphite and fluoropolymer as core layer additives. The Falla et al. patent is cited to remedy this deficiency.

Also at page 4, the Examiner states that the combination of Schuhmann et al., Keller et al. and Falla et al. teaches every element of the claims except the methyl

acrylate antiblock agent, and the concentrations of methyl acrylate, phosphite and fluoropolymer. Crighton et al. is cited for the disclosure of a heat sealed polymeric film comprising polymethacrylate antiblock agent in a skin layer of the film. According to the Examiner, it would have been obvious to one of ordinary skill to have incorporated a polymethacrylate antiblock agent into the top skin layer motivated by the desire to obtain a film having good sealing with high slip on the heat seal jaws.

The Examiner alleges that the combination of Schuhmann et al., Keller et al. Falla et al. and Crighton et al. teaches every element of the claims except the coated silica incorporated into the bottom skin layer. The Schreck patent is cited as disclosing a coated silica in the skin layer of the film of comparative example 2. Therefore, the Examiner alleges, it would have been obvious to incorporate coated silica into the bottom skin layer motivated by the desire to obtain a high gloss film with a low COF.

Thus, the Examiner states, it would have been obvious to employ the film of Schuhmann et al. as modified by Keller/Falla/Crighton/Schreck to include the additives with the concentrations as presently claimed. The Examiner further states that the cited references meet all the limitations of structure and chemistry of the claims and thus the resulting film would inherently show an improved tear performance in a hot tack test.

RESPONSE TO OBVIOUSNESS REJECTIONS

Inasmuch as Applicants have canceled claims 11 and 12, the rejections of such claims are moot. Applicants respectfully assert that new claims 14-20 are patentable over

the cited combination of Schuhmann et al. patent in view of Keller et al., Fall et al., Crighton et al. and Shreck.

To begin, the film of Schuhmann et al. is distinct from the claimed film in that it would exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F, and therefore would not function as a packaging or labeling film for use with frozen novelties as required by the present claims.

In addition, the films of the present invention are found to have a significantly lower minimum seal temperature (MST) than the previously available films of the prior art. This was a surprising result and was totally unexpected based on the prior art experience.

Applicants respectfully point out that only the combined teachings of cited references as a whole may be used for an obviousness rejection. It is impermissible to pick and choose among the disclosures of cited references in order to reconstruct the claimed invention. MPEP §2145 X.C.

The first reference, Schuhmann et al. teaches that $CaCO_3$ is a critical component of the core layer. By contrast, the films of the present invention do not require $CaCO_3$ as a component of the core layer.

The second reference, Keller et al. teaches that the polypropylene core should be at least 70% by weight of film. By contrast, the polypropylene core of films of the present invention is less than 70% by weight of film.

The third reference, Falla et al. teaches the batch inclusion of "(A) an ingredient used to make an article using heat and/or shear packaged in (B) a protective film comprising at least one substantially linear ethylene/α-olefin polymer, wherein the protective film (B) becomes part of the final article comprising the ingredient (e.g. by melting or shearing)." Summary of Invention, Col. 2, first paragraph. By contrast, the films of the present invention are specifically designed to package or label a frozen novelty product, not to become part of the final product.

The fourth reference, Crighton et al. teaches heat sealing of a heat sealable layer comprising a cross-linked polymethyl methacrylate. By contrast, the films of the present invention comprise methyl acrylate as antiblock agent.

The fifth reference, Schreck teaches the use of a sealable film having a polyolefinic top layer containing hollow particles. By contrast, the films of the present invention comprise skin layers devoid of hollow particles.

Taken together, as explained above, these references teach away from the present invention. It is therefore abundantly clear that the Examiner has used hindsight to pick and choose among the teachings of prior art references to reconstruct the claimed invention. As mentioned, the prior art must be considered as a whole in constructing an obviousness argument. This is clearly not the case in the present rejection.

It is well settled that it is impermissible to use hindsight to select those components from each of the secondary references, Keller et al. and Falla et al. and

Crighton et al. and Schreck, to modify the compositions of the films of the primary reference, Schuhmann et al., to reconstruct the compositions of the claimed films. MPEP §2141.02.

Moreover, as stated by one of the named inventors, Robert A. Migliorini, in the attached Declaration Under 37 C.F.R. §1.132, the 278WOS-2 film of pending claim 13 is shown and described in the ExxonMobil Product Characteristics Manual, 4th Edition, published in 2000, copies of the relevant pages of which are attached to the declaration as Exhibit 1. The 278WOS-2 film is currently being marketed by ExxonMobil Chemical Company and is encompassed by the claims of the above-captioned patent application.

In accordance with Claim 13 of the above-referenced patent application, the 278WOS-2 film identified in Exhibit 1 has a total polymer thickness of about 1 mil and includes five layers, listed as (i) - (v) as follows:

i) a cavitated core layer comprising polypropylene homopolymer of high stereo-regularity and a cavitating agent comprising polybutylene terephthalate, said core layer having a first and a second surface;

ii) a top tie layer comprising polypropylene and TiO2, said top tie layer being positioned adjacent to said first surface of the core layer;

iii) a top skin layer comprising polypropylene, SiO2 and methyl acrylate antiblock agent; said top skin layer being positioned adjacent to said top tie layer;

iv) a bottom tie layer comprising polypropylene, said bottom tie layer being positioned adjacent to said second surface of the core layer; and

v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer, further comprises SiO2, silicone oil antiblock, and crosslinked silicone slip agent; said bottom skin layer being positioned adjacent to said bottom tie layer; and

wherein the film does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F.

Mr. Migliorini states that the 278WOS-2 film identified in Exhibit 1 has been marketed and sold in the United States by ExxonMobil Corporation (or the predecessor Mobil Corporation) since the middle of 1999. Sales data relating to the new 278WOS-2 film identified in Exhibit 1 and its predecessor, the 278WOS film, is as follows:

Year	278WOS film Sold (lbs)	278WOS-2 film Sold (lbs)	Total 278WOS film Sold (lbs)	278WOS-2 Percent of Total Sold
1998	4,728,207	0	4,728,207	0.00%
1999	5,533,000	8,000	5,541,000	0.14%
2000	5,385,000	1,118,000	6,503,000	17.19%
2001	3,340,000	2,125,000	5,465,000	38.88%
2002*	2,980,000	3,150,000	6,130,000	51.64%

*Projected 2002 sales from the first nine (9) months sales.

Mr. Migliorini points out that as evidenced by the sales data set forth in the preceding paragraph, the 278WOS-2 film identified in Exhibit 1 has become an immediate commercial success for ExxonMobil. Prior to the introduction of the 278WOS-2 film, ExxonMobil sold a conventional three layer 278WOS film that was

compatible in design to those sold by our competitors. ExxonMobil's best sales year for our conventional three layer 278WOS film was in 1999, when ExxonMobil sold over 5.5 million pounds of this product. Also in 1999, ExxonMobil introduced its 278WOS-2 film and marketed it together with the conventional three layer 278WOS film. ExxonMobil noticed immediate results. Particularly, in the year 2000, the first full year of sales of the 278WOS-2 film, ExxonMobil's sales of this product were equal to over 17% of the total sales of the 278-WOS-2 and the predecessor, 278WOS films.

In 2001 sales of the 278WOS-2 film increased by 90% over sales for the prior year. In the following year (i.e., 2002), ExxonMobil's sales are projected to increase another approximately 33%, and are therefore expected to exceed the sales of the predecessor 278WOS film.

The foregoing sales data represents a significant market penetration for a new product in this field. It is Mr. Migliorini's professional opinion based on his experience with manufacturing and sales of multilayer plastic film products that it is highly unusual to develop such a market size for a new product over the period of time in question.

From the time of introduction of the 278WOS-2 film through the present, ExxonMobil has continued to manufacture its conventional predecessor 278WOS film. Thus, it cannot be said that the commercial success of the 278WOS-2 film identified in Exhibit 1 resulted from the phase-out of an old product. Further, to the best of Mr.

Migliorini's knowledge, there has been no phase-out of conventional the competitor multilayer plastic films marketed by other companies during this period.

The 278WOS-2 film identified in Exhibit 1 is sold by ExxonMobil at a price comparable to the predecessor 278WOS film, and at a price comparable to the competing multilayer plastic films sold by ExxonMobil's competitors. Thus, the commercial success of the the 278WOS-2 film cannot be contributed to undercutting of competitors' pricing by ExxonMobil.

The 278WOS-2 film identified in Exhibit 1 is advertised as part of a line of multilayer plastic film products offered by ExxonMobil. As such, it has not received any excessive or unusual individual advertising with respect to other products in the ExxonMobil line of multilayer plastic films. Moreover, the ExxonMobil multilayer plastic film product line as a whole has not received any excessive or unusual advertising since introduction of the 278WOS-2 film identified in Exhibit 1.

There are no special licensing arrangements in place which would have artificially increased the sales volume of the 278WOS-2 film nor has there been any artificial sales of the 278WOS-2 film to affiliated companies.

Thus, Mr. Migliorini declares in the attached declaration, the commercial success of the 278WOS-2 film identified in Exhibit 1 cannot be contributed to the above-mentioned factors. Further, it is the opinion of Mr. Migliorini that the commercial

success of the 278WOS-2 film is not due to the size of ExxonMobil's market share or to any other recent changes in the technology.

As attested by Mr. Migliorini, the commercial success of the 278WOS-2 film is due to the particular properties of the 278WOS-2 film. For example, in Exhibit 1 at pages 83 and 89, the tables of Properties show that the Crimp Seal MST (Minimum Seal Temperature) of the 278WOS film measured by Test Procedure 490 is 200°F (93°C), whereas the Crimp Seal MST of the prior art 278WOS-2 film is 180°F (82°C).

As stated at page 82, the use of 278WOS film in VFFS applications should be limited to 4-5 ounce (112-140 gram) packages. The 278WOS-2 film has no such limitation and can be used in VFFS applications for packaging of over 16 ounces (450 grams) of product. Thus, the lower Crimp Seal MST of the 278WOS-2 film of the present invention which allows effective package sealing at significantly lower temperatures, permits better sealing, machinability and packaging of much larger quantities of product.

As shown in Exhibit 1 at page 88, the heat seal range of the 278WOS-2 film is approximately 120°F (65°C), as compared to the approximately 100°F (55°C) heat seal range of the predecessor 278WOS film shown on page 82. This greater range of temperature for effective heat sealing of the 278WOS-2 film as compared with the 278WOS film of the prior art allows increased speed of packaging by modern high speed

Horizontal Form Fill and Seal (HFFS) and Vertical Form Fill and Seal (VFFS) machinery, leading to higher machine productivity.

In the past, the comparable prior art packaging films, such as 278WOS were more limited in the quantity of heat sensitive product that could be effectively packaged using modern high speed machinery, especially in Horizontal Form Fill and Seal (HFFS) and Vertical Form Fill and Seal (VFFS) processes. Thus, the newly introduced 278WOS-2 film marketed by ExxonMobil has been able to satisfy a long-felt need in the industry, namely, a film which allows higher speed packaging, and is suitable for VFFS packaging of product weights exceeding 4-5 ounces. In modern HFFS and VFFS machinery and processes 278WOS-2 exhibits outstanding packaging and machinability performance.

Thus, and further in view of the above recited evidence of commercial success, Applicants again assert that the film of pending claim 13 (and dependent claims 14-16) are not obvious over the prior art.

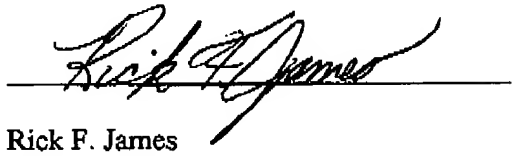
Similarly, ExxonMobil's WOW, the film of new claim 17 (and dependent claims 18-20) are unobvious over the prior art, since the film of claim 17 has all the same features and characteristics discussed above, as does the film of claim 13, except that the top skin layer comprises an ethylene-propylene-butylene terpolymer rather than the polypropylene of the film of claim 13 (See also the relevant pages, 44-45 of ExxonMobil's Product Characteristics Manual, 4th Edition, 2000, attached to this

amendment as Exhibit 1). For this reason the composition of the film of claim 17 is also patentable over the prior art.

For all the above reasons, Applicants respectfully assert that pending claims 14-20 are not obvious over the cited combination of Schuhmann et al. in view of Keller et al., Falla et al., Crighton et al., and Shreck.

Applicants respectfully submit that the pending claims are now in proper form for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of the application, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone provided below.

Respectfully submitted,



Rick F. James

Registration No. 48,772
Attorney for Applicant(s)
Telephone No. (281) 834-2438
Facsimile No. (281) 834-2911

VERSION OF AMENDMENT WITH MARKINGS

TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 11 and 12 and add new claims 13-20 as follows:

13. (New) A heat-sealable multilayer white opaque plastic film, comprising:

i) a cavitated core layer comprising polypropylene homopolymer of high stereo-regularity and a cavitating agent comprising polybutylene terephthalate, said core layer having a first and a second surface;

ii) a top tie layer comprising polypropylene and TiO_2, said top tie layer being positioned adjacent to said first surface of the core layer;

iii) a top skin layer comprising polypropylene, SiO_2 and methyl acrylate antiblock agent; said top skin layer being positioned adjacent to said top tie layer;

iv) a bottom tie layer comprising polypropylene, said bottom tie layer being positioned adjacent to said second surface of the core layer; and

v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer, further comprises SiO_2, silicone oil antiblock, and crosslinked silicone slip agent; said bottom skin layer being positioned adjacent to said bottom tie layer; and

wherein the film does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F.

14. (New) The film according to claim 13, wherein:

iv) the top skin layer comprises from about 0.1% to about 0.5% SiO_2, and from about 0.1% to about 0.5% of a second antiblock agent;

v) the top tie layer comprises up to 10% TiO_2; and

vi) the core layer comprises from about 7% to about 9% polybutylene terephthalate.

15. (New) The film according to claim 14, wherein:

i) the top skin layer comprises from about 0.15% to about 0.3% SiO_2 in the form of coated silica and from about 0.15% to about 0.25% methyl acrylate;

ii) the core layer comprises about 8% polybutylene terephthalate; and

ii) the bottom skin layer comprises an ethylene-propylene-butylene terpolymer and further comprises from about 0.6% to about 2.4% silicone oil antiblock, and from about 0.15% to about 0.3% crosslinked silicone slip agent.

16. (New) The film according to claim 13, wherein the total thickness of the film is about 1mil and

vi) the top skin layer comprises about 2.5% of the total film thickness;

vii) the top tie layer comprises about 15% of the total film thickness;

viii) the core layer comprises about 63% of the total film thickness;

ix) the bottom tie layer comprises about 15% of the total film thickness; and

x) the bottom skin layer comprises about 4% of the total film thickness.

17. (New) A heat-sealable multilayer white opaque plastic film, comprising:

i) a cavitated core layer comprising polypropylene homopolymer of high stereo-regularity; a cavitating agent comprising polybutylene terephthalate, said core layer having a first and a second surface;

ii) a top tie layer comprising polypropylene and TiO_2, said top tie layer being positioned adjacent to said first surface of the core layer;

iii) a top skin layer comprising an ethylene-propylene-butylene terpolymer, SiO_2, and methyl acrylate antiblock agent, said top skin layer being positioned adjacent to said top tie layer;

iv) a bottom tie layer comprising polypropylene, said bottom tie layer being positioned adjacent to said second surface of the core layer; and

v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer and further comprises silicone oil antiblock, and crosslinked silicone slip agent; said bottom skin layer being positioned adjacent to said bottom tie layer; and

wherein the film does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F.

18. (New) The film according to claim 17, wherein:

iv) the top skin layer comprises from about 0.1% to about 0.5% SiO_2, and from about 0.1% to about 0.5% of a second antiblock agent;

v) the top tie layer comprises up to 10% TiO_2; and

vi) the core layer comprises from about 7% to about 9% polybutylene terephthalate.

19. (New) The film according to claim 18, wherein:

iv) the top skin layer comprises ethylene-propylene-butylene-terpolymer and further comprises from about 0.15% to about 0.3% SiO2 in the form of coated silica, and from about 0.15% to about 0.25% methyl acrylate antiblock agent;

v) the core layer comprises from about 7% to about 9% polybutylene terephthalate, from about 500ppm to about 700ppm phosphite antioxidant, and from about 200ppm to about 400ppm fluoropolymer anti-condensing agent; and

vi) the bottom skin layer comprises ethylene-propylene-butylene terpolymer and further comprises from about 0.6% to about 2.4% silicone oil antiblock, and from about 0.15% to about 0.3% crosslinked silicone slip agent.

20. (New) The film according to claim 17, wherein the total thickness of the film is about 1mil and

vi) the top skin layer comprises about 2.5% of the total film thickness;

vii) the top tie layer comprises about 15% of the total film thickness;

viii) the core layer comprises about 63% of the total film thickness;

ix) the bottom tie layer comprises about 15% of the total film thickness; and

x) the bottom skin layer comprises about 4% of the total film thickness.